

EXHIBIT 1

Andrew B. Lippman
MIT Media Laboratory
Senior Research Scientist

Education:

MIT, Bachelor of Science, Electrical Engineering, 1971

MIT, Master of Science, Computer Graphics, 1978

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland,
PhD, Electrical Engineering, 1995

Professional Experience:

École Polytechnique Fédérale de Lausanne, Switzerland,
Visiting Professor of Electrical Engineering, 1995

MIT:

Massachusetts Institute of Technology, Senior Research Scientist, 2000-present

Media Laboratory, Graduate Officer, Media Arts and Sciences, 2002-present

Media Laboratory/Sloan School of Management/Computer Science and Artificial Intelligence
Laboratory, Principal Investigator of Communications Futures Program, 2003-present

Media Laboratory, Director of Digital Life consortium, 1997-present

Media Laboratory, Associate Director and Lecturer, 1987-2000

Media Laboratory, NEC Career Development Professor of Computers and Communications,
1985-1986

Architecture Machine Group, Associate Professor, 1983-1987

Architecture Machine Group, Assistant Professor, 1980-83

Architecture Machine Group, Research Associate, 1977-80

Architecture Machine Group, Research Assistant, 1976-77

Architecture Machine Group, Technical Instructor, 1975-76

Architecture Machine Group, Technical Assistant, 1971-75

Publications:

"Probabilistic Optimization for Energy-Efficient Broadcast in All-Wireless Networks", F. Li, S. Mannor and A. Lippman, Proc 39th Annual Conference on Information Systems and Sciences (CISS'2005), Baltimore, MD, March 2005.

"Spontaneous Synchronization in Multi-hop Embedded Sensor Networks: Demonstration of a Server-free Approach," Bletsas A. and A. Lippman, Second European Workshop on Wireless Sensor Networks, January 31 - February 2, 2005, Istanbul, Turkey.

"A Multi-resolution Manifold Distance for Invariant Image Similarity," Vasconcelos, N. and A. Lippman, IEEE Transactions on Multimedia, vol. 7, n. 1, pp. 127-142, February 2005.

"A Simple Distributed Method for Relay Selection in Cooperative Diversity Wireless Networks, Based on Reciprocity and Channel Measurements," Bletsas, A., Lippman, A., and Reed, D. P., IEEE 61st Semiannual Vehicular Technology Conference, May 30-June 1, 2005, Stockholm, Sweden.

"Viral Radio," Lippman, A., and Reed, D.P., BT Technology Journal, vol 22, No 4, ppg 13-24, October, 2004.

"Toward Minimum-Interference and Minimum-Energy Broadcast in All-Wireless Networks," Li, F., Lippman, A., Proc 38th Annual Conference on Information Systems and Sciences (CISS'2004), NJ, March 2004.

"Efficient Collaborative (Viral) Communication in OFDM Based WLANs," Bletsas, A. and Lippman, A., Proceedings of the International Symposium on Advanced Radio Technologies," March 2003.

"Efficient Collaborative (Viral) Communication in OFDM Based WLANs," Bletsas, A. and Lippman, A. Proceedings of the International Symposium on Advanced Radio Technologies," March 2003.

"All Together Now," A. Lippman, CONTEXT, Winter 2002/2003.

"A Multicast Transport Protocol for Cooperative Media Distribution," Vyzovitis, D. and Lippman, A. Extended Abstract, Proc. 10th IEEE International Conference on Network Protocols (ICNP 2002), Paris, FR, November 2002.

"Evaluation of Kalman Filtering for Network Time Keeping," Bletsas, A. and Lippman, A. MIT Media Laboratory, November 2002.

"Cooperative Multicast for Scalable Real-Time Media Distribution," Vyzovitis, D. and Lippman, A. MIT Media Laboratory, September 2002.

"Round 2.0," A. Lippman, CONTEXT, August/September 2002.

"Scaling the Internet," A. Lippman, MIT Media Laboratory, July 2002.

"MAST: A Language for Programmable Networks," Vyzovitis, D. and Lippman, A., MIT Media Lab Technical Report, May 2002

"Intellectual Property, Peer-to-Peer, and Micropayments: Creating a Sustainable Distribution Economy," A. Lippman and J. Silber, MIT Media Laboratory, 2001.

"Statistical Models of Video Structure for Content Analysis and Characterization," Vasconcelos, N., and Lippman, A. IEEE Transactions on Image Processing, vol. 9, no. 1, January 2000.

"Humane Interfaces to Video," Iyengar, G., Vasconcelos, N., and Lippman, A., Asilomar Conference on Signals, Systems, and Computers, Asilomar, California, 1998.

"Bayesian Modeling of Video Editing and Structure: Semantic Features for Video Summarization and Browsing", Vasconcelos, N., and Lippman, A., IEEE Int. Conf. Image Processing, Chicago, Illinois, 1998.

"Embedded Mixture Modeling for Efficient Probabilistic Content-Based Indexing and Retrieval," Vasconcelos, N., and Lippman, A., SPIE Multimedia Storage and Archiving Systems III, Boston, Massachusetts, 1998.

"Learning Mixture Hierarchies," Vasconcelos, N., and Lippman, A., Neural Information Processing Systems, Denver, Colorado, 1998.

"A Spatiotemporal Motion Model for Video Summarization," Vasconcelos, N., and Lippman, A., IEEE Conf. in Computer Vision and Pattern Recognition, Santa Barbara, California, 1998.

"A Bayesian Framework for Semantic Content Characterization" Vasconcelos, N., and Lippman, A., IEEE Conf. in Computer Vision and Pattern Recognition, Santa Barbara, California, 1998.

"Models for Automatic Classification of Video Sequences," Iyengar, G. and Lippman, A.B., Proceedings of SPIE - Storage and Retrieval from Image and Video Databases VI., San Jose, January 1998.

"Chacha: A Model for Interactive Video on the World Wide Web," Boissiere, G. and Lippman, A.B., Proceedings of ICCIMA'98 (International Conference on Computational Intelligence and Multimedia Applications), Monash University, Australia, 1998.

"Evolving Discriminators for Querying Video Sequences," Iyengar, G. and Lippman, A.B., Proceedings of SPIE - Storage and Retrieval from Image and Video Databases V., San Jose, January 1997.

"Towards Semantically Meaningful Feature Spaces for the Characterization of Video Content," Vasconcelos, N., and Lippman, A., IEEE Int. Conf. Image Processing, Santa Barbara, CA, 1997.

"Content-based Pre-indexed Video," Vasconcelos, N., and Lippman, A., IEEE Int. Conf. Image Processing, Santa Barbara, California, 1997.

"Library-based Coding: a Representation for Efficient Video Compression and Retrieval," Vasconcelos, N., and Lippman, A., IEEE Data Compression Conference, Snowbird, Utah, 1997.

"Multiresolution Tangent Distance for Affine-Invariant Retrieval," Vasconcelos, N., Lippman, A., MIT Media Lab, March 1996.

"Empirical Bayesian EM-Based Motion Segmentation," Vasconcelos, N., Lippman, A., MIT Media Lab, June 1996.

"A Bayesian Video Modeling Framework for Shot Segmentation and Content Characterization," Vasconcelos, N., Lippman, A., MIT Media Lab, November 1996.

"Entropy Measures for Controlled Coding," Iyengar, G. and Lippman, A., Proceedings of the IS&T Symposium, Digital Video Compression '96, San Jose, January 1996.

"The Media Bank: A Fault Tolerant Heterogeneous Distributed Pull Based Architecture for the Delivery of Object Oriented Multimedia Across Packet Switched Networks," Kermode, R., Holtzman, H., Lippman, A., Proceedings of the 7th International Workshop on Packet Video, Brisbane, Australia, March 1996.

"Videobook: An Experiment in Characterization of Video," Iyengar, G. and Lippman, A.B., Proceedings of ICIP '96, Lausanne, Switzerland, September 1996.

"Media Banks: Entertainment and the Internet," Lippman, A. and Kermode, R., IBM Systems Journal, vol. 35, nos. 3&4, 1996.

"Post-modern Video," Lippman, A., IBM Systems Journal, vol. 35, nos. 3&4, 1996.

"MPEG-2 requirements, profiles and performance verification - framework for developing a generic video coding standard," Okubo, S., McCann, K., and Lippman, A.B., Image Communication, Vol. 7, No. 3, September 1995, pp. 201-210.

"Net Profits: How the Information Age Hits the Living Room", Lippman, A., Le Temps Strategique, October 1995.

"Digital Television: A Perspective", Netravali, A., and Lippman, A.B., Proceedings of the IEEE, Vol. 83, No. 6, June 1995.

"Coding for Content Enhanced Resolution from Coding", Kermode, R.G., Lippman, A.B., International Conference on Image Processing Conference, Washington, DC, October 1995.

"Information Theoretic Measures for Characterizing Digital Video", Iyengar, G., Lippman, A., International Conference on Image Processing Conference, Washington, DC, October 1995.

"Spatiotemporal Model-based Optic Flow Estimation", Vasconcelos, N., and Lippman, A., International Conference on Image Processing Conference, Washington, DC, October 1995.

"Spatio-temporal segmentation based on motion and statis segmentation", Dufaux, F., Moscheni, F., Lippman, A., International Conference on Image Processing Conference, Washington, DC, October 1995.

"Re-Codable Video", Pereira, M., Lippman, A.B., Proceedings of the First IEEE International Conference on Image Processing, Austin, TX, November 13-16, 1994.

"The Distributed Media Bank", Proceedings of the First International Workshop on Community Networking, San Francisco, July 13-14, 1994.

"Library-based Image Coding", Vasconcelos N., Lippman, A.B., ICASSP Proceedings for the 1994 International Conference on Acoustics, Speech and Signal Processing, Adelaide, Australia, April 1994.

"The Coming Settop Shootout", Lippman, A.B., Testimony paper given before the Subcommittee on Telecommunications and Finance on February 1, 1994.

"MPEG-2 Requirements, Profiles and Performance Verification", Okubo, S., McCann, K., Lippman, A.B., Proceedings of HDTV '93 international workshop, Ottawa, October 1993.

"Structured Sound and Pictures", Lippman, A.B., IEEE/Academica Sineca Seminar on Multimedia Distributed Systems, Taipei, Taiwan, April 1993.

"Generalized Predictive Coding of Movies", Lippman, A.B., Kermode, R., PCS '93 Proceedings, March 1993.

"Scalable Open-Architecture Television", Bove, V.M., Lippman A.B., SMPTE Journal, January 1992.

"Feature Sets for Interactive Images", Lippman, A.B., CACM, Vol. 34, No. 4, April 1991.

"HDTV Sparks a Digital Revolution", invited paper for BYTE Magazine, December 1990, Vol. 15, No. 13.

"Optimization of Subband Vector Quantization for Moving Images", Senoo, T., Girod, B., Lippman, A.B., invited paper for SMPTE "Sound and Vision '90", Sydney, Australia, July 4, 1990.

"High-Definition Systems in the 1990s: Open Architecture & Computational Video", Lippman, A.B., Bove, V.M., Bender, W., Liu, L., Watlington, J., HDTV World Review, 1990, Vol. 1, No. 3.

"Open Architecture Television Receivers and Extensible/Intercompatible Digital Video Representations", Bove, V.M., Lippman, A.B., invited paper for IEEE ISCAS '90, New Orleans, May 1-3, 1990.

"Fifth Generation Television", invited paper for Optical News, January 1990, Vol. 1, No. 1.

"A Compatible High-Definition Television System Using the Noise-Margin Method of Hiding Enhancement Information", Schreiber W.F., Adelson E.H., Lippman A.B., Rongshu, Gong, Monta P., Popat A., Sallic H., Shen P., Tom A., Zangi K., Netravali A.N., SMPTE Journal, Vol. 98, No. 12, December 1989.

"Robust Bandwidth-Efficient HDTV Transmission Formats", Schreiber, W.F., Butera, W., Chalom, E., Monta, P., Popat, A., Lim, J., Lippman A.B., Netravali, A.N., Staelin, D.H. SMPTE Conference, Los Angeles, CA, October 21, 1989.

"Automatic 3-D Scene Modeling from Range & Motion", Girod, B., Bove, V.M., Lippman, A.B., invited paper for the 2nd International Workshop on 64 kbit/s Coding of Moving Video, Hannover, W. Germany, September 1989.

"Coding Image Sequences for Interactive Retrieval", Lippman, A.B., Butera, W., Communications of the ACM, Vol. 32, No. 7, July 1989.

"Reliable EDTV/HDTV Transmission in Low-Quality Analog Channels", Schreiber, W.F., Lippman, A.B., SMPTE Journal, Vol. 98, No. 7, July 1989.

"Open Architecture Television", Lippman, A.B., OSA invited paper for Applied Vision, 1989 Technical Digest Series, Vol. 16, San Francisco, CA, July 1989.

"A Compatible High-Definition Television System Using The Noise-Margin Method of Hiding Enhancement Information", Schreiber, W.F., Adelson, E.H., Lippman, A.B., Girod, B., Monta, P., Popat, A., Sallic, H., Shen, P., Tom, A., Zangi, K., Netravali, A., SMPTE, San Francisco, CA, 1989.

"Single-Channel Backward Compatible EDTV Systems", Lippman, A.B., Netravali, A.N., Adelson, E.H., Neuman, W.R., Schreiber, W.F. SMPTE Journal, Vol. 98, No. 1, January 1989.

"Channel-Compatible 6-MHz HDTV Distribution Systems", Schreiber, W.F., Lippman, A.B., Netravali, A.N., Adelson, E.H., Staelin, D.H., SMPTE Journal, Vol. 98, No. 1, January 1989.

"Single-Channel HDTV systems", Schreiber, W.F., Lippman, A.B., SPIE Symposium "Visual Communications and Image Processing '88", Cambridge, MA, November 9, 1988.

"Asymmetric Coding of Motion Pictures Sequences", Picture Coding Symposium, Torino, Italy, September 12-14, 1988.

"Bandwidth-Efficient Advanced Television Systems", Schreiber, W.F., Lippman, A.B., NAB Conference, Las Vegas, NV, April 11, 1988.

"Single-Channel HDTV Systems, Compatible and Noncompatible", Schreiber, W.F., Lippman A.B., HDTV Workshop, L'Aquila, Italy, March 1988.

"High Definition Television", NCGA '88 Conference Proceedings, Tutorials Vol. II, March 20-24, 1988.

"News and Movies in the 50 Megabit Living Room", Lippman, A.B., Bender, W., IEEE/IECEJ Global Telecommunications Conference, Tokyo, Japan, November 15-17, 1987.

"Computing with Television: Paperback Movies", Metropolitan Chapter of the Human Factors Society, Proceedings of the 1986 Annual Symposium "Images, Information & Interfaces - Directions for the 1990's".

"Unrecordable Video", Lippman, A.B., Hoque, T., IEEE Transactions on Broadcasting, Vol. BC-33, No. 3, September 1987.

"Electronic Publishing", MIT Media Lab, Cambridge, MA, January 1986.

"Color Word Processing", Lippman, A.B., Bender, W., Solomon G., Saito, M., IEEE Computer Graphics and Applications, Vol. 5, No. 6, June 1985.

"Optical Publishing", Computer Society International Conference (COMPCON), San Francisco, CA, February 1985.

"Imaging and Interactivity", invited paper for the 15th Joint Conference on Image Technology, Tokyo, Japan, November 26, 1984.

"Transmission of Presence", International Conference of Progetts Milano, Milan, Italy, June 15, 1984.

"Optical Data Storage & Electronic Publishing", invited paper for the Optical Society of America, Monterey, CA, April 18, 1984.

"Non-Committal Computer Systems", IEEE Conference, Frontiers in Education, September 1983.

"Personal Computers as Intelligent Partners", Proceedings of IEEE Trends and Applications Conference, May 1983.

"Current and Proposed Research at MIT on Videodisc Training", invited paper for the US Dept. of Commerce, National Bureau of Standards, December 13, 1982.

"Video Instrument Control", Instrument Society of America (ISA), International Conference and Exhibit, Philadelphia, PA, October 1982.

"Graphics and Bandwidth Compression in Video Conferencing", with Peggy Weil, SIGGRAPH 1982, Boston, MA, July 26, 1982.

"Emerging Computer Media: On Image Interaction", SPIE Proceedings for the 1st International Conference on Picture Archiving and Communication Systems, January 1982.

"Computational Video", Proceedings for the 7th Canadian Man-Computer Communications Conference, June 1981.

"A Flat Parallax-Free Interactive Graphic Station", Journal of the Society for Information Display, Vol. 21, No. 1, 1981.

"Semantic Bandwidth Compression: Speechmaker", paper for the Picture Coding Symposium, June 1981.

"And Seeing through your Hand", Proceedings of the SID, Vol. 22/21 MIT, Cambridge, MA, 1981.

"Future Interactive Graphics: Personal Video", Backer, D., Lippman A.B., NCGA Conference Proceedings, 1981.

"Video at the Learning Interface", Proceedings for the Society for Applied Learning Technology Symposium on Learning Technology for the 80's, February 1981.

"Movie-Maps: An Application of the Optical Videodisc to Computer Graphics", Proceedings for SIGGRAPH '80, Washington, July 14-18, 1980.

"High Quality Graphic Display on Standard Television", The Journal of the Society for Information Display.

MIT Research Programs:

NSF Grant CNS-0434816
(2004-2007)

Three-year grant from National Science Foundation
NeTS for research on Viral Radio

Communications Futures Program
(2003-Present)

Principal Investigator of cross-MIT research venture
along with David Reed, Media Lab; Charles Fine, MIT
Sloan School of Management; and David Clark, MIT
Computer Science and Artificial Intelligence Laboratory

Digital Life Consortium
(1997-Present)

Director of Media Laboratory consortium of sponsors
Bertelsmann, Brightstar Corporation, Cisco Systems,
France Telecom, Google, News Corporation, Nortel
Networks, NTT Comware, Panasonic Technologies
Company, Philip Morris USA, Qualcomm Incorporated,
Rodale, Inc., and Stan Winston Studio, Inc.

TV of Tomorrow Program
(1991 - 1996)

Principal Investigator, unincorporated venture
between Bertelsmann, Bell-Northern Research,
Deutsche Telekom, Hughes Aircraft Company, Eastman
Kodak Company, Intel Corporation, Philips
International, Sony Corporation, Televisa, Toppan
Printing Company and Viacom International

Media Bank
(1994 - 1998)

Principal Investigator, funded by National Computer
Board, Singapore

Movies of the Future Program
(1985 - 1991)

Principal Investigator, unincorporated venture
between Bellcore, Intel and Viacom International

Patents:

Method for Automatic Signal Routing In Ad Hoc Networks, US Patent pending, filed 11/19/02

Tag Interrogation With Observable Response Signal, US Patent pending, filed 9/26/02

Two Stage Video Film Compression Method and System, US Patent pending, filed 8/31/94

Video Image Compositing Techniques, US Patent Number: 5,262,856, filed 11/16/93

Receiver-Compatible Enhanced Definition Television System, US Patent No. 5,010,405,
filed 4/23/91

Video Graphic Arthroscopy System, US Patent No. 5,005,559, filed 4/9/91

Extended Definition Television Systems, US Patent No. 5,003,377, filed 3/26/91

Multiscale Coding of Images, US Patent No. 4,987,480, filed 1/22/91

Unrecordable Video Signals, US Patent No. 4,673,981, filed 6/16/87

Other:

Fellow, DiamondCluster International, 1999-present

Member of Advisory Board to Board of Directors, MaMaMedia, Inc., 1997-present

Member of Scientific Advisory Board, Centre for User Oriented IT Design,
Stockholm, Sweden, 1997-2004

Member of International Steering Committee, International Workshop on Coding Techniques for
Very Low Bit-rate Video, 1995

Member of the Science Council of the Cross Industry Working Team (XIWT), Corporation for
National Research Initiatives (CNRI), 1993-present

Founding Member of the Editorial Board for Multimedia Systems Journal, 1992

Member of the International Organizing Committee for the Picture Coding Symposium, 1989-1993

Chairman, International Organising Committee, Picture Coding Symposium, 1990

Member of Strategic Advisory Council of the Research and Demonstration Center on Remote
Medical Consultation Via High-Definition Television, Texas Children's Hospital, 1990-91

Member of Editorial Board of Image Communication Journal, 1989-2003

Member of the Steering Committee for International Workshop on Advanced Techniques for
Transmission of Video at 64 kbit/s or less, Hannover, West Germany, 1988-90

Board Member of Technology Broadcasting Corporation (WMBR), 1983-1989

FCC Advisory Committee Member of Advanced Television Service, 1989-90

Member of the US CCIR Study Group 11 (Television), 1990

Member of Editorial Board of ACM TOIS (Transactions on Information Systems), 1989-1990

Chairman of the Board of Advisors, Medical Simulation Foundation, 1987-1988

Medical Simulation Foundation: Principal Investigator for "The Video-Graphic Arthroscope"
Project, 1987-88

Graduate Student Council (GSC) Teaching Award for the Architecture Department, 1986

DARPA: Principal Investigator for "Synthetic Teleportation" project, 1985-1987

1983 Nebraska Interactive Videodisc Award for Best Technical Achievement, Lincoln, NE,
September 15, 1983

MIT Committee member of the Computing Environment, 1983-84

Member of Project Athena Technical Committee, 1983-84

Review Board, NSF, Applications of Interactive Videodisc to Science Education, 1977-1979, 1981

Member of the School Committee, City of Salem, MA. 1987-1993

Memberships:

ACM; IEEE; IEEE Computer Society

Theses Supervised:

Matthew Antone	<i>Synthesis of Navigable 3-D Environments from Human-Augmented Image Data</i> , ME EECS, September 1996
Barry Arons	<i>The Audio-Graphical Interface to a Personal Integrated Telecommunications System</i> , MS, September 1984
Derek Atkins	<i>Access and Access Control</i> , MS, June 1995
Dave Backer	<i>Structure and Interactivity in Media: A Prototype for the Electronic Book</i> , PhD, April 1988
Alex Benenson	<i>VideoLogo: Synthetic Movies in a Learning Environment</i> , MS, June 1990
Aggelos Bletsas	<i>IntelligentAntenna Sharing in Cooperative Diversity Wireless Networks</i> , PhD, August 2005
Aggelos Bletsas	<i>Time Keeping in Myriad Networks: Theories, Solutions, and Applications</i> , MS, June 2001
Katherine Blocher	<i>Affective Social Quest (ASQ) Teaching Emotion Recognition with Interactive Media and Wireless Expressive Toys</i> , MS, June 1998
Guillaume Boissiere	<i>Personalized Multicast</i> , SM MAS, June 1988
V. Michael Bove	<i>Synthetic Movies Derived from Multi-Dimensional Image Sensors</i> , PhD, June 1989
V. Michael Bove	<i>Personalcasting: Interactive Local Augmentation of Television Programming</i> , MS, September 1985
V. Michael Bove	<i>A Flexible Integrated Framestore System</i> , BS, May 1983
Eric Brown	<i>Optical Publishing</i> , MS, February 1983
William Butera	<i>Multiscale Coding of Images</i> , MS, July 1988
Mark Callahan	<i>A 3-D Display Head-set for Personalized Computing</i> , MS, June 1983
Ken Carson	<i>A Color Spatial Display Based on a Raster Framebuffer and Varifocal Mirror</i> , MS, September 1984

William Capolongo	<i>Color Spatial Animation Using a Varifocal Mirror Display</i> , BS, May 1985
Sailabala Challapalli	<i>Modeling the Temporal Components of Video Structure</i> , MS, May 2001
Xiang Chen	<i>Adaptive Bit Allocation for Spatiotemporal Subband Coding Using Vector Quantization</i> , MS, June 1990
Pascal Chesnais	<i>A Graphic/Photographic Arthroscopy Simulator</i> , MS, February 1988
Constantine Christakos	<i>Taking Advantage of Distributed Multicast Video to Deliver and Manipulate Television</i> , MA June 2000
Lawrence N. Claman	<i>A Two Channel Spatio-Temporal Encoder</i> , BS, May 1988
Judith Donath	<i>Inhabiting the Virtual City: The Design of Social Environments for Electronic Communities</i> , PhD MAS, June 1996
Judith Donath	<i>The Electronic Newsstand: Design of an Intelligent Interface to a Variety of News Sources in Several Media</i> , MS, September 1986
Chen-Koung Dong	<i>Measurement of Printer Parameters for Model-Based Halftoning</i> , MS, May 1992
Daniel Dreilinger	<i>Scale Free Information Retrieval</i> , EECS, Meng, June 1998
Steve Gano	<i>Forms for Electronic Books</i> , MS, June 1983
William Gardner	<i>Machine-Aided Visualization of Molecular Vibration</i> , BS, June 1982
Carol Ginsberg	<i>Human Body Motion as Input to an Animated Graphical Display</i> , MS, June 1983
Jeffrey Halbig	<i>Construction and Analysis of a Wireless Antenna-Sharing Scheme</i> , June 2004
Walid Hamdy	<i>Hardware Implementation of Dynamic Video on Personal Computers</i> , BS, May 1986
Michael J. Hawley	<i>Structure out of Sound</i> , PhD, September 1993
Mohamed Atef Hendawi	<i>Multimedia Capture of Events to Support Passive Virtual Attendance</i> , MS, June 1995
Henry N. Holtzman	<i>Three-Dimensional Representations of Video using Knowledge Based Estimation</i> , MS, September 1991
Leonard Hourvitz	<i>Stills from Movies: Personal Photography and the Personal Computer</i> , MS, August 1984
Giridharan Iyengar	<i>Video Retrieval for Reuse</i> , PhD MAS, June 1998

Giridharan Iyengar	<i>Information Theoretic Measures for Encoding Video</i> , MS, September 1995
Frank Kao	<i>Parallel Processing Interfaces to Television</i> , MS, June 1995
Karrie Karahalios	<i>Salient Movies</i> , MEng, June 1995
Karrie Karahalios	<i>Merging Static and Dynamic Visual Media Along an Event Timeline</i> , SM MAS, February 1998
Jeffrey Keast	<i>The Design and Application of a Personal Printer/Scanner System</i> , MS, June 1985
Roger Kermode	<i>Smart Network Caches: Content and Application Mediated Delivery of Multimedia Over the Internet</i> , PhD MAS, March 1998
Roger G. Kermode	<i>Building the Big Picture: Enhanced Coding from Resolution</i> , MS, June 1994
Shyam Krishnamoorthy	<i>Minerva: A Smart Video Assistant for the Kitchen</i> , MS, June 2001
Gene S. Lee	<i>Progressive Transmission of Digitally Compressed Color Images</i> , BS, June 1989
Fulu Li	<i>Cooperative Multicast in Wireless Networks</i> , MS, June 2005
Bruce McHenry	<i>Multi-Modal Communication in the Computer Medium</i> , BS, June 1984
Patrick Campbell McLean	<i>Structured Video Coding</i> , MS, June 1991
Christopher Metcalfe	<i>Media Jacket: An Integrated Clothing Based Personal Communications System</i> , MS, June 1999
Robert Charles Mollitor	<i>Image Sequence Compression via Code Encyclopedias</i> , BS, May 1988
Paul Thomas Monaghan	<i>Codebook Replenishment of Vector Quantized Movies by use of a Megatable</i> , BS, May 1989
Casey R. Muller	<i>Design and Performance of a Viral Network</i> , MS, June 2003
Eugene N. Opsasnick	<i>Color Correction for the Eikonix Digitizing Scanner</i> , BS, May 1988
Peter Pathe	<i>A Virtual Vocabulary Speech Recognizer</i> , MS, June 1983
Manuela Pereira	<i>Video Coding in a Broadcast Environment</i> , MS, September 1993
Steven L. Rohall	<i>A Graphical Interface for Cooperative Problem Solving</i> , MS, May 1988

Pasquale Romano MS, February 1990	<i>Vector Quantization for Spatiotemporal Sub-band Coding,</i>
James B. Salem	<i>Computers in the Audio Domain; creating an audio news system, BS, June 1984</i>
Gitta Salomon	<i>Design and Implementation of an Electronic Special Interest Magazine, MS, June 1986</i>
Robert Schaeffer	<i>Audio Augmentation of Video Disc Training Systems, BS/SM, May 1983</i>
Jeremy Silber	<i>A Cooperative Communication Protocol for Wireless Ad-Hoc Networks, ME, June 2002</i>
Abha Singh	<i>Variable Resolution Video, MS, June 1991</i>
Scott T. Smith:	<i>Scalable Distributed Resource Location, ME EECS, May 1998</i>
Marc Spehlmann	<i>A Speech Peripheral for an IBM Personal Computer, MS</i>
Joseph B. Stampleman	<i>Multiscale Codebooks, BS, May 1989</i>
Joseph B. Stampleman	<i>Scalable Video Compression, MS, June 1992</i>
Dang Van Tran	<i>Multimedia Applications and Network Management Support in Video DialTone ATM Network, MS/BS, May 1994</i>
Edison Thomaz	<i>Developing Distributed Contextualized Communication Services MS, September 2002</i>
Tri D. Tran	<i>Low Delay MPEG2 Video Encoding, BS /MEng EECS, June 1997</i>
Nuno Vasconcelos	<i>A Bayesian Framework for Content Characterization, Summarization, Indexing, and Retrieval, PhD, MAS, November 1997</i>
Nuno Vasconcelos	<i>Library-based Image Coding using Vector Quantization of the Prediction Space, MS, September 1993</i>
Dimitrios Vyzovitis	<i>An Active Protocol Architecture for Collaborative Media Distribution, MS, June 2002</i>
Anders Richard Wallgren	<i>Movies on the Workstation, BS, May 1989</i>
John A Watlington	<i>Synthetic Movies, MS, September 1989</i>
John A. Watlington	<i>A Decoder for Vector Coded Color Motion Picture Sequences, BS, May 1987</i>
Steven Yelick	<i>The Authoring of Optical Videodiscs with Digital Data, MS, June 1982</i>

Steven Yelick

Anamorphic Image Processing, BS, June 1980

Panels and Presentations:

Panelist, Telecoms Transitions, Lisbon, Portugal, June 2005

Keynote Speaker, IT MIDIA, Sao Paulo, Brazil, June 2005

Speaker, IDG Communications Meeting, Cadiz, Spain, May 2004

Speaker, Samsung Tech Fair 2003, Seoul, Korea, July 2003

Workshop Co-Director: United Nations: The Wireless Internet Opportunity for Developing Nations, New York, June 2003

Keynote speaker, Worldcom Customer Summit, Orlando, FL, February 2003

Keynote speaker, Nextel Indirect Conference, Las Vegas, January 2003

Presentation before Congressional Internet Caucus, Washington, DC, July 2002

"Not Your Victorian Internet," speaker, MIT On the Road, The Association of Alumni and Alumnae of MIT, West Palm Beach, FL, January 2001.

"Digital Extremism," speaker, The Leadership Center, Atlanta, GA, November 2000

"Digital Entertainment," speaker, Minnesota TEKNE Awards, Minneapolis, MN, November 2000

"Digital Life: Clearing the Cobwebs from the Net," speaker, New York State Annual Meeting, Lake Placid, NY, June 2000

"The Future is Now," keynote speaker, South Dakota Governor's Economic Development Conference, Pierre, SD, April 2000

"Always On," keynote speaker, Canadian Music Week conference, Toronto, March 2000

"Accessible Computers for All," speaker, INET'2000, Sao Paulo, Brazil, July 2000

"Taking the Lead – Issues of the Future," keynote speaker, Canadian Association of Broadcasters, Montreal, Canada, November 1999.

"The New Technology Changing the World," keynote speaker, Mgate New-Biz Forum, Athens, Greece, January 1999.

"The Developing Relation Between Digital Broadcasting and the Internet," workshop speaker, Conference on the Hong Kong TV Broadcasting Industry: Towards the 21st Century, Hong Kong, November 1998

"Transparent Technology," Keynote speaker, CUE Telecon XVII, Anaheim, CA, October 1998.

"The New World for Technology," invited speaker, Federation of European Direct Marketing, Brussels, Belgium, April 1998.

"Future of TV Networks," invited panelist, Aspen Comedy Festival, Aspen, CO, March 1998.

"The Future of Media Technology," invited speaker, Fischer, Justus Communicacao Total, Sao Paulo, Brazil, January 1998.

"The New Multimedia Environment," invited panelist, United Nations World Television Forum, New York, NY, November 1997.

TED6, Technology, Entertainment & Design, invited speaker, New York, NY, September 1997.

"The Future of Technology," Technology Forum, California State University, Hayward, CA, May 1997.

"The Future of the Newspaper in the Digital Age," International Seminar on the Future of the Daily Newspaper, Belo Horizonte, Brazil, April 1997.

"How Future Communications Impact You," Meetings & Exhibitions Technology Conference, Rosemont, IL, April 1997.

"Digital Life: Media & Community in a Connected World," ECON Zukunftstag, Dusseldorf, Germany, April 1997.

"The Future of Technology," Technology Forum, California State University, Hayward, CA, May 1997.

"QoS & Mobile Multimedia," Nomadic 97, panel member, Santa Clara, CA, August 1997.

"Nomadicity, Wearability & The Technologies of Community," Arthur Andersen High Tech Advanced Industry Seminar, keynote speaker, San Jose, CA, September 1997.

Speaker, TED6, Technology, Entertainment & Design, New York, NY, September 1997..

"The New Multimedia Environment," invited panelist, United Nations World Television Forum, New York, NY, November 1997.

"The Impact of Future Communications on the Printing Industry," keynote speaker at Tech Alert 96 Conference, Graphics Arts Technical Foundation, Pittsburgh, PA, January 1996

"Internet Entertainment," Singapore Digital Media Consortium Symposium, speaker, Singapore, February 1996.

"How Future Communications Impacts You," First Swiss Telecom Symposium, speaker, Lugano, Switzerland, May 1996.

"Telecommunications, Telematics & Social Change," ARTIS Seminar, speaker, Firenze, Italy, June 1996.

"The Future of Television," Medientage Munchen '96, speaker, Munich, Germany.

"The Future of Video Coding: What Will Be New," International Symposium on Circuits & Systems, panel member, Atlanta, May 1996.

"Emerging Architecture," invited panel participant at NII 2000 Forum of the Computer Science and Telecommunications Board, Washington, DC, May 23, 1995.

"Multimedia Revolutions: past, present and future," speaker at Management Circle Conference on Datenautobahn und Multimedia, Frankfurt, Germany, June 19-21, 1994.

"Coding Content instead of Pixels", keynote speaker at the VLBV 94 conference, Colchester, Essex, UK, April 6-8, 1994.

"Technology Day Panel", invited panel participant at the 1994 MTV Networks Management Retreat, San Juan, PR, February 8, 1994.

"Selling Value in the New Media 90s", Guest Speaker at Advanstar Communications 1994 International Sales Meeting, Cleveland, OH, January 14, 1994.

"The 5 Year Prospective for Digital Television", Panel Moderator, IEEE Digital Video Workshop, Cambridge, MA, October 1993.

"Television of Tomorrow", Interactive Panel session at the World Economic Forum Industrial Summit, MIT/Harvard, Cambridge, MA, September 10, 1993.

"Life After HDTV", panel speaker at session on "MIT in the 21st Century", Enterprise '93 Conference, Boston, MA, June 17, 1993.

"Digital Television", invited speaker at Advanced Seminar on "Desktop Video Communications: The Final Step in the Merger of Computers and Video", sponsored by Applied Business telecommunications, Atlanta, GA, May 3, 1993.

"Jumping Into the Frame: Past Interaction, Into Participation", invited speaker for AECT 1993 National Convention, New Orleans, LA, January 14, 1993.

"Telecommunications Future", panel speaker at the PLI Telecommunications Policy and Regulation Conference, Washington DC, December 3, 1992.

Television of Tomorrow: HDTV or Video home computer?, seminar speaker at the Association Descartes Conference on "Images, Screens, Networks", Paris, France, November 27, 1992.

"Variable Resolution Video on Demand", panel speaker at the EIA Digital Video Workshop, Boston, MA, October 1, 1992.

"The Communication Revolution Now: The Atlantic Connection", panel speaker at the 41st Annual IPI General Assembly, Budapest, Hungary, May 19, 1992.

"Workstations of the Future: A User's Perspective", presenter for the IEEE Satellite Videoconference, April 30, 1992.

"Television of Tomorrow/How Now PTV", presentation and panel speaker at Pacific Mountain Network Conference "Making the Most of Multichannel", La Jolla, CA, April 14, 1992.

Television of Tomorrow, speaker at the 22nd T&M Seminar "The Digital Challenge: Future Tools for Film & TV Makers", Stockholm, Sweden, February 20, 1992.

"The Potential of All-digital High Definition Television Systems", panel speaker at the Financial Times Cable Television and Satellite Broadcasting Conference, London, UK, February 19, 1992.

"How Technology will Reshape Communication", and *"Consumers — Taking Command of their Media Flow"*, speaker at the World Communication Summit, Crans-Montana, Switzerland, October 6, 1991.

"Advanced Television Systems: Anything but HDTV", invited banquet speaker at IEEE Multidimensional Signal Processing Conference, Lake Placid, NY, September 24, 1991.

"Inventing the Future at MIT's Media Lab", presentation to the CCIA Board of Director's meeting, Boston, MA, September 12, 1991.

"Movies of the Future", speaker at the CRAI Multimedia Systems: From Technologies to Applications, Capri, Italy, June 2-7, 1991.

"Television of Tomorrow: Signals with a Sense of Themselves", keynote speaker, 36th Annual IEEE International Computer Conference, COMPCON '91, San Francisco, CA, February 27, 1991.

"Digital Television", banquet speaker at the 1991 SPIE Symposium on Electronic Imaging: Science and Technology, San Jose, PR, February 26, 1991.

"The Future Path for Broadband", plenary session speaker at the 1990 ComForum Conference "Broadband: Converging on the Future", Orlando, FL, December 10-14, 1990.

"Digital Video Terminals", speaker and round table participant, EIA/IEEE 2nd International Workshop on Digital Video Communications, Cambridge, MA, November 27, 1990.

"Computing with Feeling: Directions for the Human Interface to Personal Computing in the Coming Years", invited speaker at SOFTWORLD '90 Conference, Chiba, Tokyo, Japan, August 3, 1990.

"Perspectives on Media Technology", guest speaker at the James Martin World Seminar, (TTI), Cambridge, MA, May 2, 1990.

"Information Technology Seminars", a series of talks presented at the Institute of Systems Science, National University of Singapore, Singapore, April 23-27, 1990

"HDTV Update: Current Status, Issues and Trends", NCGA '90 Tutorial speaker, Anaheim, CA, March 19, 1990.

"Electronic Document Delivery", keynote speaker at the first Bellcore/BCC Conference on Electronic Document Delivery, New Brunswick, NJ, March 12, 1990.

"Communications and Information in the Next Millenium", keynote speaker at the 1990 HIMSS Conference, New Orleans, LA, February 20, 1990.

"Focusing on the Future of the Media", keynote speaker at the Digital Photography Conference, Washington DC, February 8-10, 1990.

"Communications in the Year 2001", keynote speaker at the Dallas Communications Council conference "Communications: The Economic Wave of the Future", Dallas, TX, October 16, 1989.

"Movies of the Future: Computing in your Television, and Television in your Computers", CCISP Seminar Series, University of Pennsylvania, Philadelphia, PA, October 11, 1989.

"Video Technologies of the Future", panelist at National Communications Forum, Chicago, IL, October 3, 1989.

"Inventing the Future", keynote speaker, "Interchange '89 Conference organised by Monsanto, St. Louis, MS, September 21, 1989.

"Advances in Media Technology: The Innovations at MIT's Media Laboratory", pre-conference workshop at HCI International '89 Conference, Boston, MA, September 18, 1989.

"HDTV and the Future of Home Communications", speaker at SEMI conference "HDTV: The Impact of New Age Electronics", San Francisco, CA, June 29, 1989.

"Information in the Next Millenium", speaker at the International Thomson Professional Publishing Conference, Boston, MA, June 28, 1989.

"Media Technology", keynote address, IEEE International Workshop on Microelectronics and Photonics in Communications, New Seabury, MA, June 7, 1989.

"The Face of Communications in the Year 2001", keynote address, Video 9 Conference and Exhibition, Quinnipiac College, CT, May 25, 1989.

"Open Architecture Television", speaker at University of North Carolina/IBM Technical Symposium, Chapel Hill, NC, May 17, 1989.

"Movies of the Future", speaker at the Image and Sound Film Festival, Den Haag, The Netherlands, April 27-28, 1989.

"The Way We Like It: Concurrent, Redundant and Plural", speaker at OCRI MultiMedia '89 Conference, Ottawa, Canada, April 21, 1989.

"Human Interfaces for Multimedia Systems", speaker at Open Software Foundation University Symposium, Cambridge, MA, April 18, 1989.

"The Face of Communications in the Year 2001", keynote speaker for "Advanced Communications Technologies in Pennsylvania and the Public Interest" seminar, sponsored by PPTN, Hershey, PA, April 6, 1989.

"The Future of Television", invited speaker, 99th meeting of the National Council of the Arts, Washington DC, February 3, 1989.

"Opportunities in Communications: The Technology View", speaker for the San Diego Communications Council Conference on Technology, November 15, 1988, San Diego, CA.

"Computing and Communications in the Year 2001", speaker for Hewlett Packard Seminar, Cupertino, CA, November 15, 1988.

"The Future: Home Communications", speaker for Intel Technology Seminar, Sedona, AZ, November 2, 1988.

"The Future: Home Communications", speaker for Ameritech Presidents Conference, Pheonix AZ, November 2, 1988.

"The Face of Communications in the Year 2001", speaker for Ameritech Corporate Strategy Conference, Chicago, IL, October 26, 1988.

"Media Technology", Chairman of SIGGRAPH panel, Atlanta, GA, August 4, 1988.

"The 135 Mb Living Room", speaker for ITS Seventh International Conference, MIT Cambridge, MA, June 29, 1988.

"HDTV...The Systems Under Development", panelist at NAB Broadcast Engineering Conference, Las Vegas, NV, April 10, 1988.

"News and Movies in the 135 Megabit Living Room", speaker for Bellcore/MIT Conference "Towards a Universal Broadband Infrastructure for the US", Salt Lake City, UT, April 7, 1988.

"HDTV: Benefits, Costs and Issues", Tutorial Instructor, NCGA '88, Anaheim, CA, March 21, 1988.

"The Future Impact of HDTV Standards and Digital Television Technologies on Computer Graphics", Technical Speaker for NCGA '88, Anaheim, CA, March 2, 1988.

"Adaptive Vector Quantization of Moving Images", speaker at seminar in "Visual Communications", Columbia University, New York, NY, November 13, 1987.

"New Publishing Technologies: The Day after Tomorrow", speaker at the American Association of University Presses' Northeastern Regional meeting, Cambridge, MA, October 18, 1987.

"Electronic Futures: Technology Directions for Publishing", speaker at the Corporate Electronic Publishing Systems Conference, Boston, MA, October 28, 1987.

"Where Do User Interfaces Come From?", panelist at SIGGRAPH Conference, Anaheim, CA, July 1987.

"Digital Television: An Overview", IEEE International Symposium on Circuits and Systems, speaker, Philadelphia, PA, May 4, 1987.

"Interactive 3-D Imaging for Remote Presence and Simulation", speaker at The Institute for Graphic Communication Conference "Real-Time Stereoscopic Video Display System", Bedford, MA, March 24, 1987.

"Computing with Television", invited speaker for Images, Information, & Interfaces: Directions for the 1990s, New York Telephone, New York, NY, November 19, 1986

Workshop on Interactive 3-D Graphics, University of North Carolina, Chapel Hill NC, October 1986.

"Advanced Television Concepts", ICCE panelist for Consumer Electronics Conference, Chicago, IL, June 5, 1986.

"Unproven Guidelines for the Human Interface", invited Tutorial at Eurographics, Nice, France, September 1985.

"The Advanced Television Research Program at MIT", HDTV Conference, invitational conference of young researchers in television, Rennes, France, September 1985.

"Computer Graphics & the Media Technology" Invited Speech for Texas A&M Symposium, April 1985.

"Optical Videodiscs and Electronic Publishing", speaker for Continuing Education Institute, Los Angeles, June 1984.

"Optical Storage in the House", presentation for Technical Opportunity Conference, San Francisco, CA, December 1983.

"Exploring the Future", invited speaker for the American Press Institute, Reston, VA, November 1983.

"Interactive Three-Dimensional Computer Graphics", speaker for the Institute for Graphic Communication Conference on 3-D Display Techniques Andover, MA, November 1983.

"The Human Interface to Personal Computers", Federal Computer Conference, Washington, DC, September 1983.

"Audio-visual Communications: Tomorrow's World", speaker for the International Institute of Communications Conference, Aruba, Spain, September 1983.

"Artists Interfacing with Technology", panelist for SIGGRAPH Conference, Detroit, MI, July 1983.

"Media Technology - Past, Present, Future", speaker for the Biological Photographic Association, Dallas, TX, July 1983.

Computer & Communications Industry Association Conference, presentation, Calsbad, CA, November 5, 1982.

"Computer Graphics and the Man/Machine Interface", speaker for the First Annual Pacific Northwest Computer Graphics Conference, Eugene, OR, October 1982.

"A Conversational Model for the Human Interface to Graphics", speaker for the NCGA, Anaheim, CA, June 1982.

"Computational Video", invited speaker for the Whitney Symposium on Science and Technology, Rochester, NY, May 1982.

"Picture Archiving & Communications Systems for Medical Imaging", speaker for the First International Conference and Workshop on Picture Archiving and Communication Systems for Medical Applications Paper, Newport Beach, CA, January 17, 1982.

Advanced Research in Computer Graphics Conference, NCGA, speaker, June 1981.

"NTSC Compatible Text and Graphics", speaker for the IEEE 21st Annual Chicago Spring Conference on Consumer Electronics, June 1981.

"Computational Video: Television as a Human Interface", Canadian Man-Machine Society, June 1981.

"Video at the Learning Interface", Society for Applied Learning Technology Symposium, February 1981.

"Introduction to Dataland", speaker for the Association of Educational Communication and Technology Convention, April 1980.

"Computers in Everyday Life", Session Chairman of Technical Committee, International Federation of Information Processing (IFIP) 8th World Congress, 1980.

"Personalized Movies, Society for Applied Learning Technology", speaker for Third International Congress, January 1980.

"The Case for TV Compatibility in Computer-Aided Design", speaker for the Detroit Engineering Society, April 1979.

"Videodiscs in Cataloging", speaker for the Art Libraries Society of North America (ARLIS) Conference, March 1979.

"Interactive Computing", panelist for SIGGRAPH Conference, 1976.

Law Cases:

Hewlett Packard v. Intergraph, Civil Action 03-2517 (MJJ). McDermott, Will and Emery, November 2003

Collaboration Properties v. Polycom, USAOP-23M40533. Keker and Van Nest, April 2003, Deposed December 2003

Gemstar, MDL-1274-WBH (Levine). Morrison and Foerster, Banner and Witcoff, September 2002-April 2003, Deposed February 2003.

Electronic Industries Alliance and Consumer Electronics Association – Technical Consulting, Dickstein, Shapiro, Morin & Oshinsky, April 2002.

Certain Set-top Boxes, 337-TA-454 (Vogel). Kirkland and Ellis, July-December 2001, Deposed October 2001

Pegasus Development v. DirecTV, et al, CA 00-1020 (GMS). Jones, Day, 2001, Idle for 12 months